

What is claimed is:

1. A system for visualizing digital media, comprising:

a presentation grid for displaying selected document components, each component representing a document;

an accessor to acquire documents from at least one source of documents;

a document parser to parse said acquired documents and to divide said acquired document into document components; and

an agent to store said document components and relationships between said document components forming a model of user preferences, and said agent to select document components to display on said presentation grid according to said model.

2. The system of claim 1 wherein said agent alters said model in response to user input.

3. The system of claim 2 wherein said agent further comprises:

a document component store for storing said document components and said relationships according to said model.

4. The system of claim 3 wherein said agent further comprises:

a weight processor to assign initial weights to each document component generated by the document parser, and

alter the weights of said document components, in response to user input; and

a document component selector to select document components for display on said presentation grid, said document components selected according to said model.

5. The system of claim 4 wherein said at least one weight comprises a significance weight indicating the significance of said document component in said model.

6. The system of claim 5 wherein said at least one weight further comprises a screen weight to be used in determining placement of said related document component in said presentation grid.

7. The system of claim 4 wherein said at least one weight is a floating point number.

8. The system of claim 1 wherein said accessor acquires HTML pages.

9. The system of claim 1 wherein said accessor acquires multimedia documents.

10. The system of claim 1 wherein said source is the Internet.

11. The system of claim 6 wherein said presentation grid further comprises a doubly linked list for fast insertion and deletion operations in an order corresponding to the stacking of said selected document components in said presentation grid to store said selected document components on display in said presentation grid.

12. The system of claim 6 wherein said presentation grid further comprises an array for storing said selected document components on display in said presentation grid, said array for rapid sorting of the document components in said presentation grid.

13. The system of claim 6 wherein said presentation grid further comprises a placement grid, said placement grid defining candidate regions for document component placement on said presentation grid, whereby calculations needed for document component placement are reduced.

14. The system of claim 13 wherein said placement grid further comprises a two dimensional array of grid cell objects wherein document components are placed by aligning the document component upper left corner on a grid cell object boundary.

15. The system of claim 14 wherein a doubly linked list for fast inserts in response to interaction and an array for fast sorting are both maintained for each grid cell object.

16. A method for adaptively computing the size of a new element to be placed in a weighted presentation grid, said method comprising the steps of:

- a) deciding via heuristics the range of possible sizes for the new element, and computing the mean thereof;
- b) comparing the logarithm of the significance weight of the new element;
- c) if said logarithm is less than the mean of the significance weights of elements already in the presentation grid, setting the size to equal a linear interpolation of the position of said logarithm between the logarithm of the minimum of the significance weights of elements already in the presentation grid and the mean of the logarithms thereof, as applied to the range between the minimum and mean possible sizes for the new element; and

d) otherwise, setting the size to equal a linear interpolation of the position of said logarithm between the mean of the logarithms of the significance weights of elements already in the presentation grid and the logarithm of the maximum thereof, as applied to the range between the mean and maximum possible sizes for the new element.